

AMENDMENTS TO THE CLAIMS

In the Claims:

Please cancel Claims 1-12, 14, 16, 17, and 20-28 without prejudice. Please amend Claims 13, 15, 18, and 19. Please add new Claims 29-52. A complete copy of the claims including marked-up versions of each claim that is amended in this Amendment appears below.

1 Claims 1-12 (Cancelled)

1 13. (Amended) An apparatus for automatic control of fluid flow ~~when~~ in response to  
2 the proximity of an object is in proximity with ~~to~~ the apparatus and for communicating  
3 with a communication device, the apparatus comprising:  
4 a single infrared transmitter for selectively, alternately transmitting both an  
5 infrared detection signal and a transmitted infrared communication signal;  
6 an infrared receiver for receiving a reflected infrared detection signal;  
7 an infrared receiver for receiving a received infrared communication signal; and  
8 logic operatively connected to drive said transmitter to transmit said infrared  
9 detection signal and said transmitted infrared communication signal, said logic also being  
10 operatively configured to receive said reflected infrared detection signal and said received  
11 infrared communication signal from said receivers, said logic being configured to include,  
12 in said transmitted communication signal, information indicative of an operational state of

13 the apparatus, said logic also being configured to control fluid flow based upon the  
14 reflected detection signal.

1 14. (Cancelled)

1 15. (Amended) ~~The~~ An apparatus of claim 13 as defined in Claim 13, wherein the said  
2 infrared detection signal is comprises a sequence of pulses.

1 16-17 (Cancelled)

1 18. (Amended) ~~The~~ An apparatus of claim 17 as defined in Claim 17, wherein the said  
2 logic is configured to exclude simultaneous transmission of the said infrared detection  
3 signal and ~~the~~ said transmitted infrared communication signal.

1 19. (Amended) ~~The~~ An apparatus of claim 13, for automatic control of fluid flow  
2 when an object is in proximity with said apparatus and for communicating with a  
3 communication device, said apparatus comprising:

4 a transmitter for transmitting a detection signal and a communication signal;

5 a receiver for receiving a reflected detection signal; and

6 logic configured to control fluid flow based upon said reflected detection signal;

7 wherein ~~the~~ said receiver comprises an infrared detector having a hole, wherein ~~the~~ said  
8 apparatus further comprises another infrared detector such that an infrared signal may  
9 pass through ~~the~~ said hole and be received by ~~the~~ said other infrared detector.

1 Claims 20-28 (Cancelled)

1 29. (New) An apparatus as defined in Claim 13, wherein said infrared detection signal  
2 comprises pulses having a repetition rate of between two and ten Hertz.

1 30. (New) An apparatus as defined in Claim 13, wherein said transmitted and received  
2 infrared communication signals each comprise a sequence of pulses representing data.

1 31. (New) An apparatus as defined in Claim 13, wherein the data rate for said  
2 transmitted and received infrared communication signals is approximately 9600 bits per  
3 second.

1 32. (New) An apparatus as defined in Claim 13, wherein the coupling between the logic  
2 and said transmitter comprises a digital-to-analog converter and an infrared driver.

1 33. (New) An apparatus as defined in Claim 13, wherein said infrared receiver for  
2 receiving said reflected infrared detection signal and said infrared receiver for receiving

3 said received infrared communication signal are configured in a back-to-back  
4 arrangement.

1 34. (New) An apparatus as defined in Claim 13, wherein said infrared receiver for  
2 receiving said reflected infrared detection signal and said infrared receiver for receiving  
3 said received infrared communication signal each comprise a photo detector.

1 35. (New) An apparatus as defined in Claim 13, wherein said infrared receiver for  
2 receiving said reflected infrared detection signal and said infrared receiver for receiving  
3 said received infrared communication signal together comprise a single photo detector.

1 36. (New) An apparatus as defined in Claim 13, additionally comprising a threshold  
2 detector for comparing said reflected infrared detection signal to a threshold value and  
3 providing the result of the comparison as an output to said logic.

1 37. (New) An apparatus for automatic control of fluid flow in response to the  
2 proximity of an object to the apparatus and for communicating with a communication  
3 device, the apparatus comprising:  
4 a transmitter device for selectively, alternately transmitting both a detection signal  
5 and a transmitted communication signal;

6           a receiver device for receiving a reflected detection signal and a received  
7   communication signal; and  
8           logic operatively connected to drive said transmitter device to transmit said  
9   detection signal and said transmitted communication signal, said logic also being  
10   operatively configured to receive said reflected detection signal and said received  
11   communication signal from said receiver device, said logic being configured to include,  
12   in said transmitted communication signal, information indicative of an operational state of  
13   the apparatus, said logic also being configured to control fluid flow based upon the  
14   reflected detection signal.

1   38.   (New) An apparatus as defined in Claim 37, wherein each of said signals  
2   comprises an infrared signal.

1   39.   (New) An apparatus as defined in Claim 37, wherein each of said signals a  
2   sequence of digital pulses.

1   40.   (New) An apparatus as defined in Claim 37, wherein said logic is configured to  
2   exclude simultaneous transmission of said detection signal and said transmitted  
3   communication signal.

1 41. (New) An apparatus as defined in Claim 37, wherein said receiver device  
2 comprises a single photo detector.

1 42. (New) An apparatus as defined in Claim 37, wherein said receiver device  
2 comprises a receiver for receiving said reflected detection signal and a receiver for  
3 receiving said received communication signal.

1 43. (New) An apparatus as defined in Claim 42, wherein said receiver for receiving  
2 said reflected infrared detection signal and said receiver for receiving said received  
3 infrared communication signal are configured in a back-to-back arrangement.

1 44. (New) An apparatus as defined in Claim 37, additionally comprising a threshold  
2 detector for comparing said reflected detection signal to a threshold value and providing  
3 the result of the comparison as an output to said logic.

1 45. (New) An apparatus for automatic control of fluid flow in response to the  
2 proximity of an object to the apparatus and for communicating via bidirectional telemetry  
3 with an external communication device, the apparatus comprising:  
4 a transmitter device for transmitting both a detection signal and a transmitted  
5 communication signal for receipt by an external communication device;

6           a receiver device for receiving a detection signal reflected from an object in  
7   proximity to the apparatus and a received communication signal received from an external  
8   communication device; and  
9           logic operatively connected to drive said transmitter device to transmit said  
10   detection signal, said logic also being operatively configured to communicate  
11   bidirectionally with an external communication device by causing said transmitter device  
12   to transmit said transmitted communication signal and receiving said received  
13   communication signal from said receiver device, said logic also being configured to  
14   control fluid flow based upon the reflected detection signal.

1   46.   (New) An apparatus as defined in Claim 45, wherein each of said signals  
2   comprises an infrared signal.

1   47.   (New) An apparatus as defined in Claim 45, wherein each of said signals a  
2   sequence of digital pulses.

1   48.   (New) An apparatus as defined in Claim 45, wherein said logic is configured to  
2   exclude simultaneous transmission of said detection signal and said transmitted  
3   communication signal.

1 49. (New) An apparatus as defined in Claim 45, wherein said receiver device  
2 comprises a single photo detector.

1 50. (New) An apparatus as defined in Claim 45, wherein said receiver device  
2 comprises a receiver for receiving said reflected detection signal and a receiver for  
3 receiving said received communication signal.

1 51. (New) An apparatus as defined in Claim 50, wherein said receiver for receiving  
2 said reflected infrared detection signal and said receiver for receiving said received  
3 infrared communication signal are configured in a back-to-back arrangement.

1 52. (New) An apparatus as defined in Claim 45, additionally comprising a threshold  
2 detector for comparing said reflected detection signal to a threshold value and providing  
3 the result of the comparison as an output to said logic.